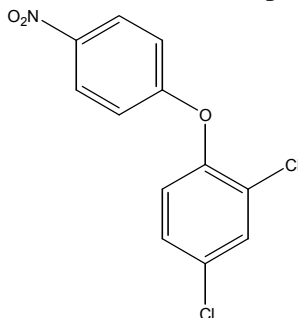


NITROFEN (2,4-DICHLOROPHENYL-*p*-NITROPHENYL ETHER)

CAS No. 1836-75-5

First Listed in the *Third Annual Report on Carcinogens*



CARCINOGENICITY

Nitrofen is *reasonably anticipated to be a human carcinogen* based on sufficient evidence of carcinogenicity in experimental animals (NCI 26, 1978; NCI 184, 1979; IARC V.30, 1983). When administered in the diet, technical-grade nitrofen increased the incidences of hepatocellular carcinomas and adenomas in mice of both sexes, hemangiosarcomas of the liver or spleen in male mice, and anaplastic adenocarcinomas of the pancreas in female rats.

There are no data available to evaluate the carcinogenicity of nitrofen in humans (IARC V.30, 1983).

PROPERTIES

Nitrofen is the common name of the compound 2,4-dichlorophenyl-*p*-nitrophenyl ether. It occurs as a crystalline solid that is slightly soluble in water and soluble in acetone, methanol, and xylene. The technical grade is 98% pure. When heated to decomposition, nitrofen emits toxic fumes of hydrochloric acid and other chlorinated compounds as well as nitrogen oxides (NO_x).

USE

There is no present commercial use for nitrofen. Nitrofen was previously used as a contact herbicide for pre- and post-emergence control of annual grasses and broadleaf weeds on a variety of food and ornamental crops (Gosselin et al., 1984; Farm Chem. Hdbk., 1985). Nitrofen was applied to crops in about 25 states by growers of rice, broccoli, cauliflower, cabbage, brussels sprouts, onions, garlic, and celery; the estimated direct crop use of nitrofen in 1980 was 882,000 lb. Nitrofen also was used in nurseries that grew roses and chrysanthemums and on rights-of-way, but it was not used around homes and gardens.

PRODUCTION

Nitrofen is no longer manufactured or sold in the United States (Farm Chem. Hdbk., 1985). According to NCI, more than 5,000 lb of nitrofen were produced in 1980. In 1980, the sole manufacturer of nitrofen recalled all existing stocks of the herbicide from dealers, distributors, and users. The 1979 TSCA Inventory identified one producer of nitrofen, with no volume reported. The CBI Aggregate was less than 1 million lb (TSCA, 1979).

EXPOSURE

The primary routes of potential human exposure to nitrofen are inhalation, dermal contact, and ingestion. Occupational exposure to nitrofen, mainly through inhalation and dermal contact, may have possibly occurred among workers at production facilities. Field handlers of the herbicide were subject to possible inhalation exposure during application procedures. The National Occupational Hazard Survey, conducted by NIOSH from 1972 to 1974, made no estimate of the number of workers potentially exposed to nitrofen.

REGULATIONS

EPA regulates nitrofen under the Food, Drug, and Cosmetic Act (FD&CA) and the Superfund Amendments and Reauthorization Act (SARA). EPA established tolerances for nitrofen residues on a variety of raw agricultural commodities, dairy products, and meat products. Under SARA, EPA established reporting requirements and general threshold amounts for nitrofen. EPA has proposed regulating nitrofen as a hazardous constituent of waste under the Resource Conservation and Recovery Act (RCRA). There was a voluntary withdrawal of nitrofen from the market by the producer; therefore, a Rebuttable Presumption Against Registration (RPAR) was not initiated for this chemical. OSHA regulates nitrofen under the Hazard Communication Standard and as a chemical hazard in laboratories. Regulations are summarized in Volume II, Table B-96.